REMARKS

Entry of the foregoing, re-examination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. § 1.111, and in light of the remarks which follow, are respectfully requested.

Claim 1 has been amended to specify the two-step phase inversion process recited therein. This amendment is supported by the specification, for example, original claim 8 and page 11, lines 3-14. Further, claims 9, 10 and 12 have been amended to change their dependency to claim 1. In addition, claim 22 has been amended to insert "to claim 1" after "according." Moreover, claim 27 has been amended to recite the content by weight of the particulate material in the polymeric matrix. This amendment is supported by the specification, for example, Example 6. Still further, claims 26, 29, and 30 have been amended to correct typographical errors therein or further improve their form. Furthermore, claims 32-34 have been rewritten to be method claims. New claim 35 has been added. Support for claim 35 can be found in the original disclosure, for example, original claim 32. Claim 8 has been canceled without prejudice or disclaimer.

No new matter has been added. Upon entry of the Amendment, claims 1-7 and 9-35 will be all the claims pending in the application.

I. Drawings

The Office Action is silent on whether the drawings previously submitted on December 18, 2004 are accepted. The Examiner is respectfully requested to acknowledge such acceptance in the next PTO communication.

II. Response to the Objection to Claims

Claims 26, 30, 32 and 34 have been objected to as alleged informalities.

Applicants respectfully submit that claims 26, 30, 32 and 34 as amended do not contain informalities. Specifically, claim 26 has been amended to delete the extra "]." Further, claim 30 has been amended to correct a typographical error therein. In addition, claims 32 and 34 as amended do not contain the objected-to words. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection to the claims.

II. Response to Rejection under 35 U.S.C. § 112, Second Paragraph

Claims 22, 27 and 32-34 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

Applicants respectfully submit that claims 22, 27 and 32-34 are not indefinite. As noted above, claim 22 has been amended to depend from claim 1. Further, claim 27 has been amended to specifically recite the content by weight of the particulate material in the polymeric matrix. In addition, claims 32-34 have been rewritten to be method claims.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the § 112 rejection.

III. Response to Rejections under 35 U.S.C. §§ 102 and 103

a. Claims 1, 3, 4, 8-15, 17-23, 25-29 and 31-34 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,497,953 to Yu et al., as evidenced by "Activated Carbon for Solvent Recovery."

b. Claims 2, 6 and 7 have been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yu et al.;

c. Claim 5 has been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yu et al in view of U.S. Patent No. 2,692,185 to Hooper et al.;

d. Claim 16 has been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yu et al. in view of U.S. Patent No. 5,744,236 to Rohrbach et al., as evidenced by The Columbia Encyclopedia;

e. Claim 24 has been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yu et al. in view of U.S. Patent No. 3,175,339 to McDowell; and

f. Claim 30 has been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yu et al. in view of U.S. Patent No. 5,286,449 to Kuroda et al.

Applicants respectfully submit that the claims as amended are novel and patentable over the cited references for at least the following reasons.

Independent claim 1 recites a method for the preparation of a polymeric matrix having particulate material entrapped in said matrix in which the polymeric matrix is porous and the particles are well accessible and maintain their functionality after preparation, said method comprising providing a mixture of polymeric material and particulate material in a solvent for the polymeric material and extruding said mixture into a fibre and solidify said fibre by a two-step phase inversion process, wherein the two-step phase inversion process comprises: (i) utilizing a spinneret to allow the controlled flow of a liquid, a vapor or a gas as an exterior medium of the nascent fiber, resulting in a first phase separation of the exterior layer; and (ii) entering of said fiber into a coagulation bath, resulting in further phase separation and arrest of the structure of said fiber.

The presently recited two-step phase inversion process involves a first phase separation step of the nascent fiber, in which the outside porosity and accessibility are controlled by choice of the exterior medium, followed by an immersion-induced second phase inversion step aimed at arresting the fiber structure. The drawings in the present application clearly demonstrate control of the exterior porosity and accessibility of the fibers according to the invention (comparing

Figures 5 and 6), as well as of the internal porosity by varying the proportion of particles within the fiber matrix according to the invention (Figure 7 vs. Figure 8).

Yu et al. describes a method for producing acrylic fibers containing dispersed, functionalized pigment particles. In Yu et al., the fibers are prepared by pumping wet spinning solutions with dissolved polymer and dispersed pigment into a coagulation bath (column 3, lines 8-33). As a result, phase inversion only occurs upon immersion in the coagulation bath, i.e., simply in one-step, and involves phase separation of the entire fiber. This one-step process of Yu et al. is different from a two-step phase inversion process recited in present claim 1.

Further, Yu et al. nowhere mentions any particular exterior medium for the nascent fiber. As such, in Yu et al., no control of the porosity of the exterior fiber surface occurs, thereby resulting in a material with other solid substances fully incorporated therein (column 1, lines 60-66). There is no description or indication in Yu et al. that this material is "porous." In fact, Yu et al. is not at all concerned with preparing porous fibers, let alone with optimal particle accessibility. Yu et al. aims instead at providing fibers with pigments that do not leach out and display excellent color retention (column 3, lines 38-43).

As noted above, Yu et al. nowhere discloses a two-step phase inversion process for controlling the porosity and accessibility of fibers with entrapped particles. For at least these reasons, Yu et al. does not disclose or suggest the subject matter recited in present claim 1.

In addition, Hooper et al. is directed to a process for spinning acrylonitrile fibers. Hooper et al. explicitly aims at reducing the porosity of the fibers (column 1, line 11; column 2, lines 37-40; and column 3, lines 53-59). Therefore, Hooper et al. does not rectify the deficiencies of Yu et al.

Further, Rohrbach et al. discloses hollow, such as trilobal or quadrilobal fibers, with mechanically entrapped solid particles. Rohrbach et al. is not at all concerned with the

preparation of a fiber matrix as such; rather, it applies existing fibers (column 2, lines 61-66 and Figure 3). The fibers of Rohrbach et al. have large exterior openings and hollow cores, instead of being porous. Therefore, Rohrbach et al. does not rectify the deficiencies of Yu et al.

Still further, McDowell is directed to a simultaneous, single-step, spinning process of a heavily (> 95%) particle-loaded viscose filament and a particle-free viscose filament. The process described in McDowell results in either side-by-side (Fig. 2) or ring-core (Fig. 4) type filaments, with the active particles either partially or fully exposed at the exterior of the filament. As such, McDowell is also not concerned with controlling the porosity and accessibility of entrapped particles. Therefore, McDowell does not rectify the deficiencies of Yu et al.

Moreover, Kuroda et al. discloses bundles of porous hollow fibers comprising a porous membranous resin matrix with ligands attached to the surface of said matrix. Porosity of the fibers of Kuroda et al. is induced by stretching (column 7, lines 8-14). Therefore, Kuroda et al. does not rectify the deficiencies of Yu et al.

In conclusion, none of the above cited documents is concerned with providing particle-loaded fibers with controlled porosity and accessibility as such. Conversely, as has been manifested in the above discussion, Yu et al. and Hooper et al. do not teach preparing porous fibers. Further, Kuroda et al. suggests stretching methods, which are explicitly abandoned in the present application (see page 3, lines 11-14 of the present specification). Hence, there is no teaching or suggestion in the cited documents, either alone or in combination, of a two-step phase inversion process. There is also no motivation in the cited documents to achieve well-controlled porosity and exterior accessibility. Therefore, even if Yu et al. is combined with Hooper et al., Rohrbach et al., McDowell or Kuroda et al., the combinations still would not result in the subject matter of present claim 1.

In view of the foregoing, Applicants respectfully submit that claim 1 is not anticipated or rendered obvious by Yu et al., alone or in combination with Hooper et al., Rohrbach et al., McDowell and Kuroda et al., and thus the rejections should be withdrawn. Additionally, claims 2-7 and 9-34 depend from claim 1, directly or indirectly, and thus are patentable over the cited references at least by virtue of their dependency.

IV. New Claim 35

Newly added claim 35 depends from claim 1 indirectly, and thus is patentable over the cited references at least by virtue of their dependency.

V. Conclusion

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (202) 452-7932 at his earliest convenience.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: September 24, 2008 By: _____

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